

WHAT IS CLAIMED IS:

1. A system operating in a computer network having a service, comprising:
- (a) a server apparatus including
 - (i) a synchronization agent for determining modification of a server workspace element and generating server results; and
 - (ii) a control engine for providing control of the service;
 - (b) a client apparatus including
 - (i) a communications engine for communicating with the server and for receiving the server results from the server; and
 - (ii) means for determining modification of a client workspace element, for generating client results, for comparing the client results with the server results, and for performing a responsive synchronization action; and
 - (c) a request-servicing engine for communicating with the control engine and for controlling the service.

2. The system of claim 1, wherein
- the server workspace element includes server version information; and
 - the synchronization agent examines the server version information against a last synchronization signature to determine whether the server workspace element has been modified.

3. The system of claim 2, wherein the synchronization agent updates the server version information.

4. The system of claim 1, wherein the server further includes a configuration engine for delivering configuration data which configures the service.

5 5. The system of claim 1, wherein the server further includes a configuration engine for delivering configuration data which configures the control engine.

6. The system of claim 1, wherein the client workspace element includes client version information and the means for determining compares the client version
10 information against a last synchronization signature to determine whether the client workspace element has been modified.

7. The system of claim 6, wherein the means for determining updates the client version information.

15 8. The system of claim 1, wherein the server uses a global format to store the server workspace element, the client uses a client format to store the client workspace element and the server further includes a global translator for translating between the client format and the global format.

20 9. The system of claim 1, wherein the server further includes a security engine for identifying and authenticating a user before enabling access from a remote client.

10. The system of claim 1, wherein the client is protected by a firewall.

11. The system of claim 10, wherein the server further includes a key for enabling communication through the firewall.

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12. The system of claim 1, wherein the client further includes a synchronization-start module for initiating the communications engine to establish a communications channel with the server.

10 13. The system of claim 1, wherein the responsive synchronization action includes generating a preferred version from the server workspace element and the client workspace element.

14. The system of claim 13, wherein the client further includes a synchronization
15 module for examining the content of the server workspace element and of the client workspace element when the means for determining cannot generate a preferred version because a conflict exists.

15. The system of claim 1, wherein the control engine includes an applet host engine
20 for transmitting an applet which controls the service to the request-servicing engine and the request-servicing engine includes an applet engine for executing the applet.

16. The system of claim 1, further comprising a user interface coupled to the control engine and enabling a user to request access to the service.

17. The system of claim 16, wherein the service enables access to the client workspace element.

18. The system of claim 1, wherein the service uses the client workspace element.

19. The system of claim 1, wherein the service uses the server workspace element.

20. The system of claim 1, wherein the service is located on the server.

21. The system of claim 1, wherein the service is located on the client.

22. The system of claim 1, wherein the computer network includes a computer providing the service.

23. A system capable of providing a service and a version-synchronized workspace element from a requesting client, comprising:

a storage medium storing an address pointing to said service;

a communications interface for establishing a communications link with the client;

a request-servicing engine coupled to the communications interface for receiving a request for access to said service from the client; and

access-providing means coupled to the storage medium and the client interface for providing access to said service to the client.

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24. The system of claim 23, wherein the storage medium further stores an address pointing to the workspace element.

25. The system of claim 23, further comprising a synchronization-start module for
10 initiating the communications interface to establish a communications link.

26. The system of claim 23, wherein the service is located on a remote computer.

27. The system of claim 23, wherein the system includes the service.

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28. The system of claim 23, wherein the service is located on the client.

29. The system of claim 28, wherein the client is protected by a firewall.

20 30. The system of claim 29, wherein the client further comprises a synchronization-start module for initiating the communications interface to establish a communications link.

31. The system of claim 29, further comprising a key to enable access through the firewall.

32. The system of claim 23, further comprising a security engine for performing
5 identification and authentication services before providing access to the service to the client.

33. The system of claim 23, wherein the request-servicing engine receives a request
10 from a remote client.

34. The system of claim 33, wherein the remote client receives the request from a
user.

35. The system of claim 23, wherein the access-providing means delivers an applet
15 which controls the service to the client.

36. The system of claim 35, further comprising an applet host engine.

37. The system of claim 23, further comprising synchronization means for
20 synchronizing the workspace element.

38. The system of claim 37, wherein the workspace element includes version
information.

39. The system of claim 37, further comprising

a synchronization agent for examining a system workspace element and generating system results; and

5 a general-synchronization module for examining a workspace element on the client, for generating client results, for comparing the client results and the system results, and for performing a responsive synchronization response.

40. The system of claim 39, wherein the responsive synchronization response

10 includes generating a preferred version.

41. The system of claim 23, wherein the service uses the workspace element.

~~42.~~ A system capable of providing a service and a version-synchronized workspace

15 element from a requesting client, comprising:

storage means storing an address pointing to said service;

communications means for establishing a communications link with the client;

request-receiving means coupled to the communications means for receiving a request for access to said service from the client; and

20 access-providing means coupled to the storage means and the establishing means for providing access to said service to the client.

43. A computer-readable storage medium storing program code for causing a computer to perform the steps of:

storing an address pointing to said service;

establishing a communications link with the client;

5 receiving a request for access to said service from the client; and

providing access to said service to the client.

44. A method capable of providing a service and a version-synchronized workspace element from a requesting client, comprising the steps of:

10 storing an address pointing to said service;

establishing a communications link with the client;

receiving a request for access to said service from the client; and

providing access to said service to the client.

15 45. A system capable of providing a service and a version-synchronized workspace element from a requesting client, comprising:

a storage medium storing an address pointing to said workspace element;

a communications interface for establishing a communications link with the client;

20 a request-servicing engine coupled to the communications interface for receiving a request for access to said workspace element from the client; and

means coupled to the storage medium and the client interface for providing access to said workspace element to the client.

46. The system of claim 45, wherein the storage medium further stores an address pointing to the service.

5 47. The system of claim 45, further comprising a synchronization-start module for initiating the communications interface to establish a communications link.

48. The system of claim 45, wherein the service is located on a remote computer.

10 49. The system of claim 45, wherein the system includes the service.

50. The system of claim 45, wherein the service is located on the client.

51. The system of claim 50, wherein the client is protected by a firewall.

15 52. The system of claim 51, wherein the client further comprises a synchronization-start module for initiating the communications interface to establish a communications link.

20 53. The system of claim 51, further comprising a key to enable access through the firewall.

54. The system of claim 45, further comprising a security engine for performing identification and authentication services before providing access to the workspace element to the client.

5 55. The system of claim 45, wherein the request-servicing engine receives a request from a remote client.

56. The system of claim 55, wherein the remote client receives the request from a user.

10 57. The system of claim 45, wherein the access-providing means delivers an applet which controls the service to the client.

58. The system of claim 57, further comprising an applet host engine.

15 59. The system of claim 45, further comprising synchronization means for synchronizing the workspace element.

60. The system of claim 59, wherein the workspace element includes version
20 information.

61. The system of claim 59, further comprising

a synchronization agent for examining a system workspace element and generating system results; and

a general-synchronization module for examining a workspace element on the client, for generating client results, for comparing the client results and the system results,
5 and for performing a responsive synchronization response.

62. The system of claim 61, wherein the responsive synchronization response includes generating a preferred version.

10 63. The system of claim 45, wherein the service uses the workspace element.

64. A system capable of providing a service and a version-synchronized workspace element from a requesting client, comprising:

storage means storing an address pointing to said workspace element;

15 communications means for establishing a communications link with the client;

request-servicing means coupled to the communications means for receiving a request for access to said workspace element from the client; and

access-providing means coupled to the storage means and the request-servicing means for providing access to said workspace element to the client.

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65. A computer-readable storage medium storing program code for causing the computer to perform the steps of:

storing an address pointing to said workspace element;

establishing a communications link with the client;
receiving a request for access to said workspace element from the client; and
providing access to said workspace element to the client.

5 ~~66.~~ A method capable of providing a service and a version-synchronized workspace
element from a requesting client, comprising the steps of:

storing an address pointing to said workspace element;
establishing a communications link with the client;
receiving a request for access to said workspace element from the client; and
10 providing access to said workspace element to the client.

67. The method of claim 66, further comprising the step of storing an address
pointing to the service.

15 68. The method of claim 66, wherein the service is located on a remote computer.

69. The method of claim 66, wherein the service is located on the client.

70. The method of claim 69, wherein the client is protected by a firewall.

20 71. The method of claim 69, further comprising the step of initiating establishing a
communications/link from the client.

72. The method of claim 69, further comprising the step of using a key to enable access through the firewall.

73. The method of claim 66, further comprising the step of performing identification and authentication services before providing access to the workspace element.

74. The method of claim 66, further comprising the step of receiving a request from a remote client.

75. The method of claim 74, further comprising the step of receiving the request from a user.

76. The method of claim 66, further comprising the step of delivering an applet which controls the service to the client.

77. The method of claim 66, further comprising the step of synchronizing the workspace element.

78. The method of claim 77, wherein the workspace element includes version information.

79. The method of claim 77, further comprising the steps of examining a system workspace element and generating system results; and

